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progress will be moulded by the conclusions we shall reach. Let us address ourselves to the work before us with the same fraternal zeal that has characterized the meetings of the Society in the past, and that in fact is singularly characteristic of that noble body of men who practice the profession of engineering, a profession whose triumphs are our pride and whose future greatness it is the object of this Society to foster.

HENRY T. EDDY.

UNIVERSITY OF MINNESOTA.

ANTHROPOLOGY AT THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

THE section was organized August 9th, as follows: W J McGee, Chairman; Anita Newcomb McGee, M. D., Secretary (elected to fill the vacancy caused by the resignation of Harlan I. Smith); W. H. Holmes, Councillor; Alice C. Fletcher (*ex officio*), M. H. Saville, Frank Hamilton Cushing and Warren K. Moorehead, Sectional Committee-at-Large; Washington Matthews, General Nominating Committee; Lightner Witmer, Stephen D. Peet and Alois Hrdlicka, Nominating Committee-at-Large.

The meetings of the section were held in the most spacious of the class-rooms in the high school building, and were well attended not only by members of the Association, but by citizens of Detroit; the attendance ranged from 50 to 400, averaging fully 200. Special interest attached to the afternoon session of August 11th, which was a joint meeting of Sections E and H, in the room assigned to the latter, for discussion of the human relics from sand deposits in Delaware valley. A number of foreign guests, members of the British Association, attended this and other meetings of the section; among them were Dr. and Mrs. Robert Munro, of Edinburgh; Professor and Mrs. J. L. Myres, of Oxford;

Prince Krapotkin, of Russia, latterly of Kent, England; Dr. Albrecht Penck, of Vienna; Professor Vernon Harcourt, of Oxford, and Dr. H. P. Truell, of Wicklow, Ireland.

The afternoon of August 9th was devoted to the Vice-Presidential address, which has appeared in this JOURNAL; and the morning session of August 10th was devoted mainly to a summary and continuation of the address, followed by a general discussion of the anthropologic classification suggested therein, in which Miss Fletcher, Dr. Munro, Professor Myres, Dr. Peet, Professor Witmer and others participated. Later a report was presented by Miss Fletcher on the Winter Conference of members of Section H held in New York last December. The section then voted to request authority from the Council to hold a formal meeting at Ithaca during the Christmas holidays of this year. (This meeting was duly authorized by the Council, and a small appropriation was made to cover cost of printing announcements, etc.)

The reading of the papers began with the afternoon session of August 10th. The first of these was an elaborate account of the superstitions, beliefs and practices of the ancient Mexicans, by Zelia Nuttall, read, in the absence of the author, by Dr. Saville. The material was mainly compiled from the records of early Spanish missionaries among the Aztecan Indians; it derived importance from the fact that these records are little known, and have not hitherto been brought to the attention of students of anthropology. The discussion by Dr. Hrdlicka and others indicated that many of the superstitions and ceremonies of the ancient Mexicans are duplicated among the more primitive peoples of different countries, notably those of central Europe.

'The Study of Ceremony,' by Dr. Washington Matthews, followed. The author expressed the conviction that the ceremonies

of primitive people are not merely worthy of scientific study, but are of sufficient extent and importance to serve as a basis for a distinct branch of science; and he illustrated his idea by describing the elaborate ceremonies of different Indian tribes and discussing the rise and decadence of fiducial practices among the American aborigines. He suggested several terms suitable for designating the study of ceremony, and invited the appointment of a sectional committee to consider the subject of nomenclature. After discussion of the paper by Dr. Peet and others, the section voted to appoint the committee suggested by Dr. Matthews, and Rev. Stephen D. Peet, Miss Alice Fletcher and Mr. Frank Hamilton Cushing were appointed as such committee.

Dr. Peet followed with a suggestive comparison of Cherokee and European symbolism, in which many curious parallels were brought out.

The next communication was 'Kore-shanity: A Latter-Day Cult,' by Anita Newcomb McGee, M.D. The author described briefly a cult or religious system founded by Dr. Cyrus R. Teed, or Koresh (the Hebrew form of the prename Cyrus), and detailed the curious cosmogony bound up with the religious teaching. Although it gained foothold only within a dozen years, the doctrine has spread with such rapidity that the adherents number many hundred, perhaps thousands, of whom about 150 have entered a communistic organization with headquarters in Chicago and a colony in southwestern Florida. The communication was discussed by Professor Morse, Professor Witmer and others.

The work of the day ended with a paper on the origin of the week and holy day among primitive peoples, by Rev. R. J. Floody. Beginning with an account of the wide distribution of hebdomadal systems in different parts of the world, the author passed to explanations of the occurrence of such

systems, and finally enunciated the proposition that such systems originated spontaneously among peoples in that culture-stage in which adoration of the sun, moon, etc., prevails; he held that the lunation of about 28 days is the simplest and most convenient time-measure longer than the day, and that it is naturally divisible, first into semi-lunations of relative dark and light, and then into quarter lunations defined by wax and wane with respect to full moon, 'dead' moon and intermediate half moon. An elaborate array of evidence in support of the idea, derived from primitive customs and also from folk-lore and even modern customs, was presented, and the easy development of the sacred day in connection with the moon-defined seven-day period was pointed out.

The morning session of August 11th was devoted to Mexican archæology. The first paper was a brief account, by Professor F. W. Putnam, of recent researches by George Byron Gordon on the banks of the Ulloa River in Honduras, made for the Peabody Museum. Professor W. H. Holmes followed with an account of 'The Building of a Zapotec City,' in which he sketched briefly the history of the ruined city of Mitla, as viewed from the standpoint of the builder's art. He illustrated the subject by selecting an ordinary edifice and describing the several stages in construction, beginning with the preparation of the material by quarrying and cutting the stone, passing to the masonry construction and then describing the roofing and surface embellishment; examples of the materials and of the quarrying and cutting implements—almost wholly of stone—were exhibited. Dr. Saville then noted 'The Geographic Distribution of a Certain Kind of Pottery found in Mexico and Central America;' this ware is characterized by a peculiar steel blue-gray lustre, more nearly approaching a true glaze than any surface finish heretofore

known in ancient America, of which twenty-six specimens have been found in widely separated localities from Tapeç, Mexico, to Copan, Honduras; he expressed the opinion that the specimens were originally made about Alta Very Paz, Guatemala. Dr. Peet then discussed 'The Serpent Symbol in Nicaragua,' noting the great contrast with the corresponding symbol found in the eastern part of the continent, and pointing out that in the East the serpent was generally regarded as evil or inimical to mankind, while in Nicaragua it was considered a beneficent deity. The reasons for this diversity in belief were examined at length, and reference was made to the serpent symbol and its meaning in other parts of the world. The author expressed the conviction that, while the theory of parallel development (*i. e.*, the doctrine of activital coincidence, which has recently grown prominent, especially among American anthropologists) was strongly suggested by the facts, it could hardly be accepted as a full explanation of the similarities and dissimilarities noted. The paper was discussed by several members, notably Dr. Munro, who expressed some skepticism concerning the prevalence of serpent worship and mentioned instances of manifest error in the interpretation of artificial and even natural objects as serpent symbols. Mr. Stansbury Hagar contributed remarks concerning the Micmac and other Indians.

The afternoon was devoted to a symposium on the question of early man in Delaware valley. The Section of Geology (under Professor E. W. Claypole as Vice-President) participated. Brief papers by Messrs. H. B. Kummel and G. G. Knapp were first presented, in the absence of the authors, by Professor R. D. Salisbury. Professor Putnam then gave a detailed account (illustrated by numerous diagrams, photographs and specimens) of the work of his assistant, Mr. Ernest Volk, in searching for human

relics in the deposits about Trenton, New Jersey. It was shown that there is here a relic-bearing deposit of sand containing ferruginous bands, ranging from two feet or less to three or four feet in thickness; and photographs and other records were exhibited, showing the occurrence of artificial chips, spalls, flakes, and more or less perfect implements of argillite, quartz, etc., in this deposit to the depth of nearly or quite three feet, the abundance diminishing downward. Professor Putnam especially pointed out that, so far as his observations had gone, the artifacts of argillite predominate below, those of other materials above; he also held that these argillite objects were of the type known in Europe as paleolithic, while he regarded the more superficial artifacts as neolithic. He was followed by Professor G. F. Wright, who argued (1) that the ferruginous bands in the sand are marks of stratification, hence (2) that the deposit is water-laid, and (3) that its age corresponds with that of the later glacial deposits further northward in Delaware valley, *i. e.*, that it is Pleistocene.

Professor Holmes then exhibited a series of diagrams and other illustrations representing the geographic and geologic conditions of the relic-bearing deposits about Trenton. He first described the extensive deposit or series of deposits, reaching forty feet or more in thickness and consisting of gravel with some loam, which were undoubtedly formed during the glacial period. He pointed out that these were the deposits from which human relics were first reported at Trenton, and dwelt on the extended researches of over a dozen skilled archæologists and geologists who had been unable to find artifacts in undisturbed portions of these deposits, though they were found in the talus which unskilled observers sometimes mistook for the undisturbed deposits; and on this body of negative, yet abundant and cumulative, evidence he ex-

cluded these older deposits from consideration in connection with the question at issue. Taking up the later sand deposit, he showed that it is superficial and of limited extent, and of so slight depth as not to preclude the probability that all of the artificial material might have worked its way down from the surface; he also pointed out that this deposit appears to rest unconformably on the Pleistocene deposits, and gives other indications of being much newer. Passing then to the distribution of objects and materials, he showed that the artifacts diminish gradually and with fair uniformity downward, the distribution following the law displayed by organic matter and other substances originating at the surface; he also noted that his observations and those of his collaborators indicate no perceptible difference in frequency of argillite and other materials at the surface and at the greater depths, and exhibited photographs and specimens showing the occurrence of a finished quartz blade at about the maximum depth of human relics. In his introductory remarks and incidentally later he pointed out that, whether the artifacts be regarded as paleolithic or neolithic, they are precisely such as were found in use among the Algonquian Indians living on the site up to the time of white settlement. A brief paper by Thomas Wilson was read, in the absence of the author; it was chiefly an expression of conviction that a part of the argillite material should be classed as paleolithic.

Speaking on behalf of the geologists, Professor Claypole discussed the processes of ferrugination, and pointed out that the ferruginous bands illustrated in the diagrams and photographs could not be regarded as stratification lines, or as evidence of the aqueous origin of the sand-beds. Professor Salisbury, the geologist in charge of the State and Federal Surveys in the district, then discussed the geologic relations of the

deposits; he described the thick beds of gravel and loam (which he had examined repeatedly without finding artificial material) as aqueo-glacial in origin and hence Pleistocene, and observed that the local and superficial bed of sand is younger, and was probably formed after the present river channel was excavated, at least in part, in the older deposits; he held that there was no decisive evidence that these sands were water-laid, that all of their phenomena could be explained otherwise, and that it was at least equally probable that they are eolian and perhaps quite recent. Professor T. C. Chamberlain emphasized the uncertainty as to the origin and age of the deposits developed by the elaborate studies of Salisbury, Kummel, Knapp and others, and counseled caution in basing sweeping conclusions on so questionable premises. Dr. Penck described a somewhat parallel case in Europe, in which the question as to the age of relic-bearing deposits was set at rest by the finding of Roman objects associated with the artifacts of stone. Dr. Munro questioned whether any of the objects exhibited were paleolithic in the sense in which that term is used in Europe, and expressed doubt as to whether any trustworthy evidence of paleolithic man has been found west of the Atlantic. In response to a call, Mr. G. K. Gilbert questioned the validity of the supposed evidence of paleolithic man in Delaware valley, and mentioned cases coming under his own observation in which natural and artificial material was commingled in recent deposits.

Rising in rejoinder, Professor Putnam alluded to the discovery of an artifact beneath a large boulder, apparently in place in the older gravels, and mentioned the finding of a human cranium, apparently of Eskimoan type, in the same deposit; and he reiterated his confidence in the prevalence of argillite materials of paleolithic character in the basal layers of the sand

beds. Professor Salisbury reviewed the geologic discussion, pointing out that the relations were such that, if the objects under consideration were fossils, no geologist would think of regarding the association as significant; and Professor Holmes recalled attention to the fact that the argillite artifacts are indistinguishable from those produced by Indians living in that vicinity up to the beginning of the present century.

The symposium was notable for the thorough knowledge of the facts displayed by several participants, as well as for the courtesy with which it was conducted.

The morning session of August 12th was opened with the exhibition of an archæologic map of Ohio by Warren K. Moorehead, who described the methods pursued in his archæologic survey of the State. The map received favorable comment throughout the section as representing the most ambitious and successful work of the kind thus far undertaken in America. The next paper, 'The Import of the Totem—a Study of the Omaha Tribe,' by Miss Alice Fletcher, was a remarkably full yet concise memoir representing the results of thorough study. It was favorably discussed by Dr. Matthews, Dr. Peet, Professor Myers and others (it will appear elsewhere in this JOURNAL).

The afternoon session commenced with two elaborate papers illustrated by photographs, on the Tagbanua and the Mangyan tribes of the Phillipines, by Professor Dean C. Worcester; the tribes being discussed separately by reason of important differences in their customs and beliefs. Their physical characteristics, their marriage and mortuary customs, their arts and industries and their beliefs were described in detail. Then came a full account of the anthropologic work of the New York Pathological Institute, by Dr. Hrdlicka, the Superintendent. The chief object of this work is the establishment of average or normal standards, physical, physiologic and psy-

chologic, especially of American-born people; the methods or ancillary purposes were fully set forth and the value of the work was shown. This paper was followed by two suggestive papers by Harlan I. Smith, viz.: 'The Ethnologic Arrangement of Archæologic Material,' and 'Popular Anthropology in Museums,' read, in the absence of the author, by Dr. Saville.

On August 13th the session was opened by an attractive paper, illustrated by numerous diagrams and tables, entitled 'An Experimental Analysis of the Relations of Rate of Movement to certain other Mental and Physical Processes,' by Dr. Lightner Witmer. The results of the investigations described were full and far-reaching, and will doubtless be presented in some detail elsewhere. There followed 'A Statistical Study of Eminent Men,' by Professor J. McKeen Cattell; it was presented by the Chairman in the absence of the author. It involved the application of a somewhat arbitrary method of measuring eminence quantitatively on the basis of the space devoted to individual biographies in certain selected encyclopedias and biographical dictionaries; and, after finding the thousand most eminent men of the world in this manner, their distribution was discussed by time, race, nation, etc. The results were illustrated by diagrams. The paper was freely discussed by several members. 'A Case of Trephining in Northwestern Mexico,' by Carl Lumholtz, was presented, in the absence of the author, by Dr. Hrdlicka; it was deemed specially noteworthy as one of the most northerly examples thus far known of a primitive art which attained great development in Peru; and also because of the suggestion, derived from the form of aperture, that the operation was performed by tubular drilling something after the fashion pursued in the modern operation. The next communication was 'A Description of a Pre-Aztec Skeleton found

in Adobe Deposits in the Valley of Mexico,' by Dr. Lumholtz and Dr. Hrdlicka; it was presented by the junior author, and illustrated by photographs, diagrams and tables. The skeleton presents several remarkable features which were described in detail; in general it is of strikingly low somatic type. The characters, particularly of the skull, differ from those of the Aztec or Nahuatlans and approach those of other ancient inhabitants of the same valley, especially the so-called Toltecs. The paper was discussed at length by Dr. Matthews, Professor Morse and others, the former pointing out, by reference to many examples, the general fact that supposedly low somatic characters frequently result from the form of exercise determined by the habits of life of certain tribes; he referred especially to the olecranon perforation, which he ascribes to the custom of grinding on the metate. Several papers were then read by title, and the scientific work of the section was brought to a close by a highly suggestive communication on 'The Genesis of Implement Making,' by Frank Hamilton Cushing, which will appear elsewhere in this JOURNAL.

The session was brought to an end within the last minute of the time allotted to the sectional work at the Detroit meeting, every moment of the working time having been occupied. In a vote of thanks to the presiding officer of the section, courteously presented by Miss Fletcher, special reference was made to this activity; and in seconding the motion, ex-President Morse observed that, during the many years of his connection with the Association, he had never seen the sectional work performed with so great harmony and scientific zest.

ANITA NEWCOMB MCGEE, *Secretary*.

COLUMBIA UNIVERSITY ZOOLOGICAL EXPEDITION OF 1897.

THE results obtained by the zoological expedition sent out by Columbia University

in the summer of 1896 were so valuable as to warrant a second expedition to continue the examination of the waters of the north-west Pacific coast. It was decided this year to carry the exploration to Alaska and to examine new regions on Puget Sound, in the vicinity of Port Townsend.

As before, the party obtained the most satisfactory rates from the Canadian Pacific Railroad, and it gives me great pleasure to say that the magnificence and grandeur of the scenery along the route is not the only recommendation for the road. The great care taken for the safety of their passengers, together with many courtesies and polite attentions which we received from every official with whom we came in contact, added greatly to the pleasures of the trip.

I also take this occasion to thank Lieutenant Hetherington, U. S. N., of the Bremerton Naval Station, for many courtesies shown us both before and after our arrival at Port Orchard.

The original members of the party were G. N. Calkins (in charge), N. R. Harrington, B. B. Griffin, J. H. McGregor and F. P. Keppel. Professor E. B. Wilson and Professor F. E. Lloyd joined the party somewhat later. We reached Port Townsend, which again was to be our headquarters, on the morning of June 16th. There was little to be done at this time, for our experience last year had shown that few of the marine forms were ripe so early in the season. We added a few new species, however, to our collection of last year; among them were three siphonophores (*Monophyes*, *Diphyes* and *Physophora*); one ctenophore (*Beroë*); five medusæ, one nudibranch mollusc; one turbellarian, a lizard and a snake, but our attention was turned mostly towards our anticipated excursions to Port Orchard, to Sitka, Alaska, and to Neah Bay. Owing to the lateness of the maturation-period in the cold waters